

CLAIMS*included a67*

1. A fluid flow actuated downhole tool being configurable in at least a first tool configuration and a second tool configuration, the tool comprising:

5 a tubular housing;

an activating sleeve, the housing being adapted to catch the sleeve when the sleeve is dropped from surface and the caught sleeve permitting actuation of the tool between the first and second tool configurations; and

10 flow restriction means for permitting fluid flow actuation of the tool when the activating sleeve has been caught in the body.

2. The tool of claim 1, wherein the sleeve defines a flow restriction.

15 3. The tool of claim 2, wherein at least two axially spaced flow restrictions are provided in the sleeve.

4. The tool of claim 1, 2 or 3, wherein the tool is a bypass tool.

5 The tool of claim 4, wherein the bypass tool is

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~~normally closed.~~

6. The tool of any of the preceding claim, wherein the sleeve is adapted to be retrievable from the housing.

7. A method of operating a fluid flow-actuated tool, the method comprising:

running the tool into a borehole in a tubular string;  
circulating fluid through the string and the tool;  
dropping an activating sleeve into the string;  
catching the sleeve in the tool; and

circulating fluid through the string, the sleeve and a flow restriction in the tool to actuate the tool.

8. The method of claim 7, wherein fluid is circulated through the string at a rate sufficient to provide cuttings entrainment while the sleeve passes through the string.

9. The method of claim 7 or 8, wherein following actuation of the tool, the tool is repeatedly actuated between first and second tool configurations.

10. The method of any of claims 7 to 9, wherein the tool is a bypass tool and is actuated between a closed and an open position.

~~11. The method of any of claims 7 to 10, further comprising the step of retrieving the sleeve from the tool.~~

12. A method of operating a fluid flow actuated tool, the method comprising:

5 (a) running the tool into a borehole in or as a part of a tubular string;

(b) circulating fluid through the string and tool;

(c) passing an activating device into the tool;

(d) catching the device in the tool;

10 (e) circulating fluid through the string and the tool including the device, to actuate the tool; and

(f) repeating step (e) at least once.

13. The method of claim 12, wherein the activating device is a sleeve.

15 14. The method of claim 13, wherein the activating device is a sleeve defining a restriction.

15. The method of claim 12, 13 or 14, wherein activation of the tool is achieved by releasing a coupling to permit relative movement of parts of the tool.

20 16. The method of claim 15, wherein the coupling is a shear coupling.

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17. The method of claim 15, wherein the coupling is a sprung coupling.

18. The method of claim of any of claims 12 to 17, wherein the tool is a bypass tool and is actuated between a closed and an open position.

19. A method of actuating a downhole tool, the method comprising:

running a tool into a borehole in a tubular string;

circulating fluid through the string and tool;

locating an activating device in the string; and

circulating fluid through the string and tool as the device travels down through the string, as the device engages the tool, and following engagement of the device and the tool.

20. The method claim 19, wherein the method further comprises drilling as the device travels through the string.

21. The method of claim 19 or 20 wherein the fluid circulating rate is maintained at a level sufficient to maintain cutting entrainment.

22. The method of claim 19, 20 or 21, wherein the

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activating device is a sleeve.

23. The method of claim of any of claims 19 to 22, wherein the tool is a bypass tool and is actuated between a closed and an open position subsequent to location of the activating device in the tool.

24. A downhole tool for disposition in a borehole of a well, the tool being configurable in at least a first and a second tool configuration, the tool comprising:

a tubular housing for running into a borehole on a tubing string;

a tubular sleeve assembly for disposition within the tubular housing and axially movable therein and including fluid responsive means for actuating the tool between said first and second tool configurations, the fluid responsive means including a restriction;

a restriction-engaging insert for engaging the restriction; and

means for maintaining said sleeve assembly in a selected one of said first and second tool configurations.

25. The tool of claim 24, wherein the tool is a bypass tool and is in a closed configuration in the first tool configuration and an open configuration in the second tool configuration.

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26. The tool of claim 25, wherein the sleeve assembly is selectively movable to the open configuration.

27. The tool of any of claims 24 to 26, wherein the tubular sleeve assembly comprises a control sleeve and a flow restriction within the control sleeve for restricting the flow of fluid through the control sleeve.

28. The tool of claim 27, wherein the restriction is defined by an insert which is dropped from the surface into the tubing string and travels through the string and engages the control sleeve.

29. The tool of any of claims 23 to 28, wherein the maintaining means comprises a releasable connection for engaging the control sleeve and maintaining it in a selected one of said first and second tool configurations.

30. The tool of claim 29, further comprising a tubular insert adapted to release the connection on engaging the control sleeve.

31. The tool of claim 24, 25 or 26, wherein the fluid responsive means defines a differential piston.

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~~32. The tool of any of claims 24 to 31, wherein the insert is a ball.~~

~~33. The tool of any of claims 24 to 31, wherein the insert is a sleeve.~~

5 34. The tool of any of claims 24 to 33, wherein the downhole tool further comprises indexing means for selectively allowing actuation of the tool between said first and second tool configurations.

10 35. The tool of claim 34, wherein the indexing means comprises a cam arrangement.

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